Chapter IV
Media Ensembles and New Product Team Creativity:
A Tree-Based Exploration

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ABSTRACT

New product development (NPD) project members are increasingly dispersed across the globe. As a result, traditional face-to-face communication is often substituted and supplemented by more "virtual" media. A common concern is whether NPD teams that frequently use virtual media can be truly creative. In this chapter we attempt to explain why the creativity of some teams is above average, whereas others perform below the average. By using classification trees, we conduct an empirical study of the media ensembles employed by 46 teams involved in hi-tech NPD. We find that being above or below average cannot be explained by theories that focus on single media: the creative performance of NPD teams is a function of the media ensembles used. Some ensembles afford much higher probabilities for above-average creativity than others. These findings enrich theories of media choice and may provide managers with some ideas of how team creativity can be managed.

INTRODUCTION

Creativity is an essential part of organizational life. The development of new products, answers to customer complaints, response to actions of competitors, dealing with changes in govern-ment regulations, creating collaboration with partners in the industry: all nonroutine activity involves some process of creativity. New product development (NPD) may be the epitome of "non-routineness": by definition it involves the search for output that does not exist yet and arriving at

that output often involves knowledge, technology, and procedures that have to be created along the way. Add to this competing goals, unstable environments, long time horizons, incompleteness of operational specifications, and unclear applicability of past experience (Pasmore, 1997) and the need for creativity is unmistakable.

Modern NPD activity is pervasively organized through teams (Griffin, 1997; Van Engelen, Kiewiet, & Terlouw, 2001). Whereas over the last two decades 'teams' have become part of NPD managerial vocabulary, 'virtual teams,' within and across organizations, are a more recent phenomenon (Andres, 2002). A concern that has been raised is whether it is possible for virtual NPD teams to develop truly creative new products and solutions. Research in this area is scarce—the few existing articles include Leenders, Kratzer, and Van Engelen (2003, 2004), Martins, Gilson, and Maynard (2004), Nemiro (2000, 2002) and chapters in this volume.

In this chapter we will study one aspect of this issue: how the technology used by NPD team members in their mutual communication affects the creativity of their teams. Communication between members of NPD teams is the means through which information and knowledge is disseminated and new knowledge is created. Different teams can easily be observed using different mixes—in terms of the communication tools used and the intensity with which each is employed. Since academic research clearly shows that NPD team creativity is largely couched in the team's communication process, it makes sense to expect that differences in use of communication tools may lead to differences in team level creativity. In addition, not much is known about the extent to which the findings regarding "traditional" teams are valid in the case of more "virtual" NPD teams. Since virtuality involves the use of "virtual" media such as internet and video conferencing—adding to replacing face-to-face interaction—the palette of media that are at the disposal of NPD teams is changing. Given that NPD teams are becoming increasingly dispersed, gaining knowledge relating virtuality to NPD team creativity is of increasing importance.

In this chapter we will argue that the effect of media choice on the creative performance of NPD teams can best be understood by considering the combinations of media used by the team, rather than considering which medium is in primary use. What makes one team more creative than another is not explained by the frequency of use of one particular medium. Rather, the explanation is in the way various communication media are used in a consistent media ensemble. Given the scarcity of research in the area of team creativity and virtuality, we will report on an exploratory study of communication media use in NPD teams.

The remainder of the chapter is organized into four sections. First, we will discuss the concept of virtuality and argue that teams vary in their level of virtuality. Second, we will discuss the extant literature on media choice and media use and develop our main argument: creative teams are not characterized by their use of one particular mode of communication, but rather by the combination of the modes they use. Third, we will present our exploratory study of media use in NPD teams. The dependent variable is whether or not a team's creativity is above-average and the search is for combinations of media that explain whether the creativity of a team is above or below the average. For the analysis we employ a classification tree approach, a statistical technique that is uniquely suited for our research task. Finally, we provide a discussion of our findings and fruitful future research.

NPD TEAM COMMUNICATION AND CREATIVITY

There are several reasons why modern NPD activity is typically organized through teams working within project structures. First, the development of new products often involves the concerted input

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